

Washington State Institute for Public Policy

A Plan for Evaluating Washington State's Violence Prevention Act

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The 1994 Washington Legislature passed E2SHB 2319, a wide-ranging Act whose primary purpose is to reduce the rate of violence—particularly *youth* violence—in the state. The legislature also identified six additional “at-risk” behaviors that it wants to reduce. These include: “teen substance abuse, teen pregnancy and male parentage, teen suicide attempts, dropping out of school, child abuse or neglect, and domestic violence.”¹ The Act also seeks to reduce the rate of state-funded out-of-home placements of youth.²

To accomplish these reductions, the legislature adopted three policy approaches. First, state agencies and local communities were directed to take a “public health” approach to controlling and preventing the problems identified in the Violence Prevention Act. Second, the legislature instructed local communities, as opposed to state agencies, to take a larger role in planning and implementing prevention activities. To do this, the legislature created a new entity—Community Public Health and Safety Networks. Third, the Act increased certain criminal penalties, including those for the unlawful use of and access to firearms, and changed other policies concerning public safety, education, and the media.

The legislature directed the Washington State Institute for Public Policy to evaluate the effectiveness of these policies in reducing the rates of violence and the other at-risk behaviors, and increasing protective factors. The Act instructs the Institute to submit an evaluation plan to the legislature and the Governor by July 1, 1995. This report describes the Institute’s plan for carrying out these responsibilities.

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SECTION 1: Legislative Intent

In 1994, the Washington State Legislature passed the Violence Prevention Act, E2SHB 2319. The Act addresses many ways of reducing adult and juvenile violence and other at-risk behaviors of youth in Washington. The Act states the following legislative intent:

*The legislature finds that violence is abhorrent to the aims of a free society and that it can not be tolerated. State efforts at reducing violence must include changes in criminal penalties, reducing the unlawful use of and access to firearms, increasing educational efforts to encourage nonviolent means for resolving conflicts, and allowing communities to design their prevention efforts.*³

The legislature adopted six broad purposes for the Violence Prevention Act. They are to:

1. *Prevent acts of violence by encouraging change in social norms and individual behaviors that have been shown to increase the risk of violence;*
2. *reduce the rate of at-risk children and youth...;*
3. *increase the severity and certainty of punishment for youth and adults who commit violent acts;*
4. *reduce the severity of the harm to individuals when violence occurs;*
5. *empower communities to focus their concerns and allow them to control the funds dedicated to empirically supported preventive efforts in their region; and*
6. *reduce the fiscal and social impact of violence on our society.*⁴

In addition to the Act's focus on youth violence, the legislature also identified six other "at-risk" behaviors that should be reduced. These include: "teen substance abuse, teen pregnancy and male parentage, teen suicide attempts, dropping out of school, child abuse or neglect, and domestic violence."⁵ The legislature's intent was to identify problems early in a child's life, to implement coordinated interventions empirically related to these problems, and to prevent unnecessary state-funded out-of-home placements or institutionalization.⁶

To implement its goals, the legislature adopted three policy approaches. First, the legislature directed state agencies and local communities to take a "public health" approach to controlling and preventing the problems identified in the Act.⁷

The legislature wanted to adapt the scientific methodology used by public health agencies “to control other problems such as infectious disease, tobacco use, and traffic fatalities,”⁸ and to apply that approach to preventing and reducing youth violence and other at-risk behaviors identified in the Act. In particular, the legislature wanted to reduce those “risk factors,” and increase those “protective factors,” that are “empirically linked” to youth violence and the other at-risk behaviors (see box on page 5).⁹

Second, the legislature articulated the position that local communities, as opposed to state agencies, should take a major responsibility in determining how best to prevent violence and other at-risk behaviors. After a deliberative planning process, local communities could determine how state dollars currently being spent in categorical programs for children and families might be re-directed toward reducing youth violence and at-risk behaviors.¹⁰ A new entity was created for this purpose—Community Public Health and Safety Networks—with instructions regarding membership and purpose.

In addition, the legislation addressed violence reduction through particular criminal justice measures, as well as education and media efforts. These provisions are summarized as follows:

Criminal Justice

- *Creation of juvenile boot camp*
- *Transfer of certain juvenile offenders to adult court*
- *Sentence enhancements for juvenile offenses related to firearm possession and parole violations*
- *Sentence enhancements for certain adult crimes*
- *Increased restrictions for deferred adjudications*
- *Directed activities regarding racial disproportionality*
- *Authorization of curfews by local governments*
- *Revocation of driving privileges for juveniles with firearm offenses*

Education

- *Preparation of educational materials to reduce violence*
- *Creation of Task Force on Student Conduct*
- *Authorization of student dress codes*

Media

- *Requirements of a time-channel lock for new televisions and cable customers at cost*
- *Development of anti-violence standards by libraries regarding minors’ access to videos and video games*
- *Prohibition of certain movies in correctional facilities*

Outcome Behaviors and Risk and Protective Factors Identified by the Legislature

The legislature, in adopting the Violence Prevention Act, identified particular risk, protective, and other factors that seem to be empirically linked to violence and the other problem outcomes. The public health approach involves treating the problem outcomes—youth violence, teen substance abuse, teen pregnancy and male parentage, teen suicide attempts, dropping out of school, child abuse or neglect, domestic violence, and state-funded out-of-home placements—by adopting public policies that either reduce the risk factors or increase the protective factors.

Outcome Behaviors from E2SHB § 203

- Violent criminal acts by juveniles
- Teen substance abuse
- Teen pregnancy and male parentage
- Teen suicide attempts
- Dropping out of school
- Child abuse or neglect
- Domestic violence
- State-funded out-of-home placements of youth (E2SHB 2319 Section 310(6))

Risk Factors from E2SHB § 302(12)

- Availability of drugs or alcohol
- Economic, educational, or social deprivation
- Rejection of identification with the community
- Academic failure
- Family history of high substance abuse or crime
- Lack of acceptance of societal norms
- Substance, child, and sexual abuse

Protective Factors from E2SHB § 302(11)

- Acceptance of community norms regarding appropriate behaviors
- Educational opportunities
- Employment opportunities
- Absence of crime

Other Possible Risk Factors from ESHB § 203(2)(b)

The legislation also identified other factors that may be determined to be empirically related risk factors such as: poverty, single-parent households, inadequate nutrition or hunger, unemployment, lack of job skills, gang affiliation, lack of recreational or cultural opportunities, school absenteeism, court-ordered parenting plans, problems requiring special needs assistance in K-12 schools, and learning disabilities.

The Violence Prevention Act was one of the major topics before the 1994 Legislature. That Legislature was aware that concerns about youth violence and at-risk behaviors could not be solved in one legislative session. To ensure that policymakers can judge which intervention policies are cost-beneficial, the 1994 Legislature directed the Washington State Institute for Public Policy to evaluate the law's effectiveness. The next section discusses specific legislative directions and the Institute's evaluation plans.

SECTION 2: The Role of the Washington State Institute for Public Policy in Evaluating the Violence Prevention Act

Under the Violence Prevention Act, the Washington State Institute for Public Policy is given three specific responsibilities:

1. To **monitor and track the overall implementation** of the Violence Prevention Act and to **evaluate the effectiveness of the Act** in achieving a measurable reduction in violence in the state.¹¹
2. To **evaluate the effectiveness of the Community Public Health and Safety Networks** in reducing the rate of at-risk youth, increasing youth “protective factors,” and reducing youth “risk factors.”¹²
3. To **make recommendations to the legislature** on the continued funding of a Network based on a Network’s ability to meet its outcome standards, once a Network has been granted funds for five years.¹³

The Act instructs the Institute to submit an evaluation plan to the legislature and the Governor by July 1, 1995.¹⁴

The goal of the Institute’s research is to provide the legislature with useful and timely information on the problems of violence—particularly youth violence—and the other at-risk behaviors of youth identified by the legislature. The Institute’s research strategy is geared to answer the following questions:

- *Research Topic 1:* How have **trends** in youth violence and at-risk behaviors in Washington changed over time? Are the trends getting better or worse?
- *Research Topic 2:* How much do violence and at-risk prevention programs **cost** in Washington?
- *Research Topic 3:* What are the **benefits** to the citizens of Washington if violence prevention programs are successful?
- *Research Topic 4:* How **effective** are the Networks’ prevention programs in reducing the rates of violence and at-risk behaviors, and enhancing protective factors, in Washington? What success level is necessary for violence prevention programs to be cost-effective?
- *Research Topic 5:* How effective are Networks in furthering the **governance goals** of the Act?

The specific strategies for these topics are discussed in Section 3 of this report; the schedule of products for the five research topics follows:

Schedule of Research Products:

Research Topic 1:

Recidivism Patterns of Washington State Juveniles **1st Report August 1995**
and Yearly Updates

Aggregate Youth Violence Rate **1st Report October 1995**
and Yearly Updates

Criminal History Measurement of Youth Violence **1st Report November 1995**
and Yearly Updates

Summary Report on Risk Factors in State **1st Report December 1995**
and Yearly Updates

Research Topic 2:

Fiscal Allocation: Before the Networks **1996**

Fiscal Allocation: Comparisons Before and After **1st Report 1997**
and Yearly Updates

Staffing Patterns **1st Report 1996**
and Yearly Updates

Research Topic 3:

The Fiscal and Victim Benefits of Violence Prevention **1996**

Research Topic 4:

Cost-Effectiveness Threshold **1996-97**

Cross-sectional Analysis of Network Outcome Indicators **1st Report 1996-97**
and Yearly Updates

Selected Control-Group, Program Level Evaluations **To be determined**

Research Topic 5:

Networks as Decision-Making Bodies **December 1995**
and Yearly Updates

SECTION 3: The Institute's Research Approach

In designing this research plan, the Institute consulted individuals from the legislature, state agencies, and local communities. The importance of high quality research with relatively modest price tags was mentioned frequently during these discussions, as was the need to provide information as quickly as possible.

These recommended priorities are reflected in the Institute's research approach. The following parameters have guided the development of this plan.

1. Rely on existing data and expertise.

The topic of youth violence has received significant research attention in the last few years. Several state agencies, in addition to local health departments, have analyzed violence and at-risk behaviors and published several excellent documents . These include:

- the Department of Health's *Youth Risk Assessment Database*,¹⁵ *A Preliminary Assessment of Violence in Washington State*¹⁶, *The Public Health Improvement Plan*,¹⁷ and *Youth Violence and Associated Risk Factors: An Epidemiologic View of the Literature*.¹⁸
- the Governor's Juvenile Justice Advisory Committee's *Juvenile Justice Report*,¹⁹
- the University of Washington's *The State of Washington's Children*,²⁰
- the Seattle-King County Health Department's *Too Many, Too Young: Violence in Seattle and King County*.²¹

These documents, and the expertise of their authors, will be important sources of information for this evaluation.

The national literature on violence and at-risk behaviors is also quite rich, with studies from several disciplines, including sociology, psychology, public health, economics, and criminology. One of the more prominent research organizations in the country studying

youth issues is the Social Development Research Group at the University of Washington. The theories and community approaches that have originated from this group's research were relied on in drafting the Violence Prevention Act. In addition to consulting this body of research and its authors, the Institute will utilize the resources of the Center for the Study and Prevention of Violence, located at the University of Colorado at Boulder. That center, and its director Delbert Elliott, are excellent sources regarding research findings on both the causes and prevention of violence.

In addition to reliance on existing research and analysis, the Institute will make extensive use of existing data bases. Washington State has funded data systems which can provide answers to many policy questions and describe changes in patterns during the last decade. Use of these data bases is cost-effective, and also allows a longitudinal perspective for some at-risk behaviors.

2. Pay attention to legislative priorities.

Research regarding violence and at-risk behaviors can cover a wide spectrum. The Institute's plan is directed toward an *audience of decision makers* with responsibility for policy and budgeting decisions in Washington State in the next five years. Close attention has been paid to the intent section of the Violence Prevention Act, including the priority placed on reducing the fiscal and social impact of violence. By including cost-benefit analysis in the evaluation plan, the Institute will assist legislators as they make policy decisions as well as the budget decisions to support those policies.

The 1994 and 1995 legislative deliberations on the Family Policy Council's budget, and proposed bills regarding the Community Public Health and Safety Networks, included discussion of the governance structure of the Networks. The evaluation plan includes examination of these governance issues.

3. Vary the evaluation approach depending on the research question.

The plan relies on several methodologies, ranging from process evaluation and fiscal analysis, to cost-benefit analysis. By relying on a variety of approaches, the evaluation can answer the broad range of issues which policymakers address.

4. Respond to a changing policy environment.

There is substantial debate in the state about how best to organize Washington's response to youth violence and the other at-risk behaviors identified in the Violence Prevention Act. The Institute has designed its research plan so that it responds to the current policy debate and future deliberations. Thus, the plan does not commit the entire research budget to a long-term project incapable of being altered. Instead, the plan operates in stages, producing products on a continual basis and allowing flexibility to respond to a changing policy environment.

5. Publish information on a frequent basis.

Rather than producing a single document at the study's conclusion, the Institute will report frequently on its findings. The evaluation will be conducted in several stages, with numerous products on separate topics. By distributing information in stages, policymakers can use the information to guide decision-making over the next several years. A number of the research activities involve improved ways to describe, statistically, the trends in youth violence and at-risk behaviors. The Institute will issue updated reports on these trends as new data become available. (See page 8 for the schedule of publication dates.)

Research Topic 1: How have trends in youth violence and at-risk behaviors in Washington changed over time? Are the trends getting better or worse?

The Institute's initial research efforts will focus on describing the long-term trends in youth violence and at-risk behaviors in Washington. The product will be a succinct portrait of what is getting better and what is getting worse. Existing data will be used for this analysis, supplemented by an analysis of a relatively unused source of information from the Office of the Administrator of the Courts (OAC). The Institute will use the OAC's "JUVIS" database to provide the legislature with several new and comprehensive ways to view youth violence at both the state and local levels. The JUVIS system tracks every youth who has made contact with the juvenile court system since the early 1980's.

Two new measures will be computed to provide the legislature and others with a more complete overview of youth violence at the state and Community Network levels. For the Institute, these new statistical gauges will be valuable in evaluating the key elements in the Violence Prevention Act. These two measures are described below.

1. Tracking Trends in Rates of Youth Violence:

Aggregate Youth Violence Rate. One of the statistics will be the equivalent of a "Gross Domestic Product" (GDP) statistic for the state's juvenile justice system. GDP is calculated for the U.S. economy because it allows, literally and metaphorically, the aggregation of apples and oranges into a single meaningful statistic for the nation's economy. The JUVIS data system can provide a conceptually-similar, big-picture measure of youth violence in Washington.

Because of Washington State's unique juvenile code, an aggregate measure can be calculated for all offenses in a given time period. When juveniles enter the juvenile court system for an offense, they receive a total number of points based on the seriousness of their offense, and their age and criminal history. A few examples help to illustrate how Washington's juvenile point system works:

- A sixteen-year-old found guilty of Assault in the Second Degree receives 140 points for that offense.
- If the same youth had been thirteen, instead of sixteen, he or she would have received 110 points for the Assault offense.
- If the youth had prior adjudications, the point total would be increased by a factor calculated from a standard schedule. If, to continue the example, the sixteen year old had a prior conviction a year and a half ago for, say, Burglary in the Second Degree, the 140 points for the current offense would be multiplied by an "increase factor" of 1.6 to produce a point total of 224.

Since each juvenile who is referred to the Juvenile Courts in Washington receives points calculated in this manner, these points can be summed for all juveniles in the JUVIS system.

Using the JUVIS database, the point totals can be calculated to include or exclude the effects of criminal history or age. Thus, as an example, a youth violence statistic calculated for 1994 would sum all points the juvenile population accumulated for violent offenses committed in 1994, ignoring the “increase factors” associated with criminal history.²² The aggregate number would change from year to year as more or fewer offenses were recorded and as the seriousness of the immediate offenses changed. The resulting number can then be divided by the total number of juveniles in the state (from the Office of Financial Management) to derive an *aggregate youth violent crime rate*.

Arrest-based statistics from the police and sheriff departments are normally calculated in a similar fashion. The significance of the JUVIS data base lies in the *weighting system* built into the point calculation. For example, using arrest data from police departments, the number of “violent” offenses is typically used to produce a violent crime rate after dividing by population. But this aggregation implicitly assumes a weighting factor of 1.0 for *each type of violent offense*; that is, a murder has the same weight as an assault. The point system in JUVIS—which reflects the relative seriousness of different juvenile offenses—adds sensitivity to the measurement of violent youth crime.

Changes in the classification and designation of certain offenses change over time as lawmakers change the criminal and juvenile code. The data on juvenile offenses in the JUVIS system can be used in two basic ways to account for these policy changes. The youth violent crime rate can be calculated to reflect the laws that were in effect in any given year. Or, as an alternative, the crime rate can be calculated to reflect the current laws in effect in Washington. In the later case, data for offenses committed in earlier years would be revised to reflect the current classification of offenses. Each of these approaches has useful applications; the Institute will calculate both as part of the study.

Clearly, aggregate-level statistics will not answer all questions about trends in youth violence, in the same way that it is necessary to look deeper than GDP statistics to understand how the economy is changing. But, in the same way that GDP is used to gauge the overall health of the economy, this statistic will provide an improved assessment of whether juvenile violence is getting better or worse in Washington, at both the state and Community Network levels.

2. Criminal History Measurement:

The second statistic from the JUVIS data will serve as the delinquency-equivalent of the high-school SAT test for the “graduating” class of eighteen-year-olds in Washington. This measure will use the data in JUVIS on the *criminal histories* of offenders, in addition to *current offense data*. This information will provide another way to look at violence in the youth population.

The Scholastic Aptitude Test (SAT) tries to measure the accumulated learning abilities of students, reflecting not just what they learned in the year they take the SAT, but everything learned to that time. Similarly, this youth violence statistic will measure not just the delinquent acts committed by seventeen-year olds when they are seventeen, but all of the adjudicated delinquent acts in their earlier years as well. When viewed over time, this measure will offer a good way for policymakers to gauge the trends in the delinquency history of each “graduating” class of youth.

In particular, this measure will identify how *repeat offenders* influence violence levels in the state. The literature on crime sometimes refers to this repeat offender issue as the “six percent” phenomenon. That is, other studies have shown that a fairly small proportion of the juvenile population causes a great percentage of juvenile crime. James Q. Wilson has noted a number of studies which show that a remarkably consistent 6 percent of boys cause 50 percent of serious crime.²³ Using the JUVIS data, a similar statistic can be calculated for Washington.

These two statistical measures of youth violence, in addition to being useful for the evaluation of the Violence Prevention Act, will be helpful for those involved in forecasting key trends in Washington’s adult criminal justice system. Because these statistics will more accurately measure the delinquent *history* of each “graduating” class of youth, they will allow adult corrections planners to better understand the type of young offenders that may be headed for the adult system in the years ahead. This information will allow planners to anticipate more accurately future resource alternatives and needs in the adult system.

3. Tracking Patterns in the Recidivism Rates of Juvenile Offenders:

Recidivism is the tendency of an offender to re-offend. Recidivism rates are often used to evaluate the effectiveness of particular criminal sanctions and prevention efforts in deterring future crime. While there has been a considerable amount of research on adult recidivism patterns, little research has been done to understand juvenile recidivism in Washington.²⁴ The Institute, working with the Administrator for the Courts, will develop ways to use the JUVIS information so policymakers and others can effectively follow juvenile recidivism rates, and determine whether those rates are getting better or worse over time. Summary information on recidivism patterns of Washington’s juvenile population will also be published, covering from 1984 to 1993.

A second related research effort will use the state's JUVIS database on young offenders, together with information on adult offenders, to track the patterns of juvenile-to-adult recidivism. The JUVIS system records information on juvenile delinquents until they are 18 years old. After that, any contact with the state's correctional system is tracked through a separate database for adults. In order to understand the long-term recidivism patterns of young offenders, the two data systems need to be linked for research purposes. The Institute will work with staff at the Office of the Administrator for the Courts and the Sentencing Guidelines Commission to make this linkage and to analyze the trends.

Research Topic 2: How much do violence and at-risk prevention programs cost in Washington?

Taxpayers now fund violence and at-risk youth prevention programs at both the state and local levels of government. The Violence Prevention Act was adopted, in part, as a new way to *allocate* those public funds. The legislature described its intent to “empower communities to focus their concerns and allow them to control the funds dedicated toward empirically supported preventative efforts in their region.”²⁵ One way to measure how local decision-making differs from state decision-making is to track how these public dollars are spent.

The process of moving funds from state programs into local control has been called “decategorization.” The Violence Prevention Act sets up the following process.

The [family policy] council, and each network, shall specifically review and report, to the governor and the legislature, on the feasibility and desirability of decategorizing and granting, all or part of, the following program funds to the networks:

- *Consolidated juvenile services;*
- *Family preservation and support services;*
- *Readiness to learn;*
- *Community mobilization;*
- *Violence prevention;*
- *Community-police partnership;*
- *Child care;*
- *Early intervention and educational services, including but not limited to, birth to three, birth to six, early childhood education and assistance, and headstart;*
- *Crisis residential care;*
- *Victims’ assistance;*
- *Foster care;*
- *Adoption support;*
- *Continuum of care; and*
- *Drug and alcohol abuse prevention and early intervention in schools.*²⁶

The earliest that any program would be “decategorized” under this process would be during the 1997 legislative session, when lawmakers adopt the 1998-2000 state budget.

1. Network Fiscal Decisions:

The evaluation effort will address two components: fiscal decisions by the Networks, and staffing patterns. The Institute will evaluate the fiscal allocation patterns for the programs listed in the statute for potential decategorization, both **before** the Networks were created, and **after** they “decategorize” and allocate funds for the programs. This fiscal study will thus provide a *before-and-after analysis of public fiscal decisions on violence and at-risk prevention programs*.

The accounting will break costs out by major program type taking into account the population focus (e.g., K-12 children and teenagers) and topic area (e.g., pregnancy prevention, drug and alcohol treatment). The accounting system will also include standard definitions of cost categories including money spent for contracts, staffing, and overhead. Working with staff at the Family Policy Council and its member agencies, the Institute will develop an accounting approach and gather the fiscal information on youth violence and at-risk prevention programs at the state and Network levels.

The patterns of fiscal decision-making will be compared among Networks, and also compared to previous state allocation patterns. This analysis will allow detailed information about how local decision-making compares to state decision-making. Additionally, when combined with the next research steps, questions can be answered about the *cost-effectiveness* of violence and at-risk prevention programs.

2. Staffing Patterns:

Some people believe that “decategorization” of funding programs across the state will spur efficiency and reduce the need for staff, especially for program administrators. Others have suggested that decategorization will increase the total number of program administrative staff in the state and thereby decrease program efficiency.

The Institute’s evaluation will track the Act’s influence on these staffing patterns. The tracking will focus on staff dedicated to administering the programs identified in the Act for potential decategorization.

Research Topic 3: What are the benefits to the citizens of Washington if violence prevention programs are successful?

A significant part of the Act focuses on prevention strategies for youth violence. In the bill's intent section, which contains just 30 lines of text, the word "violence" appears 13 times. The legislation addresses other at-risk behaviors—teen substance abuse, teen pregnancy and male parentage, teen suicide attempts, dropping out of school, child abuse or neglect, and domestic violence—but clearly, a principal focus of the Act is on how these and other behaviors affect the rate of youth violence.

Because a goal of the legislation is to "reduce the fiscal and social impact of violence on our society,"²⁷ the Institute will use a cost-benefit methodology as part of its evaluation of violence prevention efforts in the state. This type of economic analysis begins with a basic question: what are the *benefits* to society if violence can be prevented?

If violence is **not** prevented, society incurs various costs. Some of these costs are borne by taxpayers who must provide the policing, legal, and correctional systems to deal with violence's aftermath. Some costs are borne by the direct and indirect victims of violence. Some costs, it has also been noted, relate to the lost economic productivity of the perpetrators of the violence.²⁸ If violence can be prevented, on the other hand, all of these costs can be avoided.

The benefits of preventing or reducing violence can be measured, therefore, by estimating the costs that society can avoid if violence is controlled. Other analysts have noted that society benefits when offenders are incarcerated because they are removed from free society.²⁹ The Institute will analyze the *costs and benefits of incapacitation* in this study of the benefits of violence prevention.

How much public money should be spent trying to prevent violence? Clearly, if a violence prevention program doesn't work at all, expenditure of tax dollars for the program is a misallocation of society's scarce resources. If, on the other extreme, a program costs little to run and is 100 percent successful with every participant, then society will very likely benefit from paying for the program rather than incurring the costs of violence. Real-world programs are likely to fall somewhere between these two extremes and cost-benefit analysis measures the *net* value of these efforts. Additionally, by estimating the benefits of violence prevention programs, and by carefully accounting for their costs, simple arithmetic can be used to calculate how successful violence prevention programs must be to be cost-effective (see Research Topic 4).

1. General Approach: A cost-benefit evaluation of violence prevention programs requires three types of information: 1) the fiscal and social benefits of a successful prevention program, 2) the fiscal costs of running prevention programs, and 3) the number of successes achieved by the programs. These factors are arranged in Figure 1, which describes the general cost-benefit test to be used in the evaluation.

Figure 1
**A General Cost/Benefit Test for Evaluating
Youth Violence Prevention Efforts in Washington State:**

*Are the Benefits of Violence Prevention Programs
Greater than or equal to the Costs?*

$$\begin{array}{ccc}
 \begin{array}{l} \textbf{\textit{The Fiscal and Social Benefits}} \\ \textbf{\textit{of Preventing Violence}} \\ \textit{(See Research Topic 3 of this Plan)} \end{array} & \geq & \begin{array}{l} \textbf{\textit{The Total Cost of the}} \\ \textbf{\textit{Prevention Programs}} \\ \textit{(See Research Topic 2 of this Plan)} \\ \textbf{\textit{The Number of Violent Acts}} \\ \textbf{\textit{or Violent Individuals Reduced}} \\ \textit{(See Research Topic 4 of this Plan)} \end{array}
 \end{array}$$

The factors in this formulation can be re-arranged to set up the basic cost-benefit test. In the following equation, if the Net Present Value (NPV) of a violence prevention program is positive, then the program's benefits (i.e., the fiscal and social costs avoided by preventing violence) outweigh the costs of running the program. If the NPV is negative, then the prevention program costs more than the benefits gained by the program.

$$(1) \quad NPV = PV(\textit{Avoided Costs}) - \frac{PV(\textit{Program Costs})}{\textit{Successes}}$$

In this model,

PV(Avoided Costs) = the present value of the long-run fiscal and social costs avoided by reducing an additional violent act or keeping an additional individual from perpetrating violent acts. These avoided costs measure the benefits that society as a whole, or taxpayers more narrowly, receive from a successful reduction in the number of violent acts or violent individuals.

PV(Program Costs) = the present value of the total costs of a prevention program. These costs include the operating costs and the fully allocated capital costs of a violence prevention program.

Successes = the estimated number of violent acts or violent individuals that are avoided as a result of a program intervention.

2. Measuring the Benefits of Violence Prevention Programs: The Concept of Avoided Costs:

Economic theory suggests that violence prevention efforts are cost-effective up to the point where the cost of an additional successful program intervention is just equal to the avoided fiscal and social cost of violence. In thinking about avoided costs, it may be helpful to draw on an analogy from an entirely different field of inquiry. In the electric utility industry in Washington, determining the cost-effectiveness of utility-run conservation programs has been a focus of research for a number of years. If utilities spend money now to install conservation measures in homes and businesses, they can avoid the cost of having to build power plants later.

The research question for utilities has been: How much conservation is cost-effective? If conservation costs less than the avoided cost of having to build power plants, then conservation passes the economic test. In fact, the legislature used this reasoning in the 1980s when it passed legislation for a statewide building code for energy efficiency. The relevant research question at that time was: how much conservation should be required in the building code? Should attics of new homes have 2 inches, 2 feet, or 2 yards of insulation? The legislature adopted a code including conservation up to the avoided cost of generating electricity from new coal-fired power plants. To have required more or less insulation would not have been optimally cost-effective.

In broad concept, violence prevention programs have the same economic logic as energy conservation. In the same way that electric utilities decide how much money to invest in conservation, state and local policymakers decide how much public money to invest in violence prevention programs. Electric utilities invest in conservation to avoid paying for future power plants while state and local policymakers must determine whether violence prevention efforts help avoid future criminal justice and victimization costs.

Measuring the avoided fiscal and social costs of violence thus provides a meaningful way to gauge the potential benefits of violence prevention programs. In the appendix to this paper, the avoided cost model the Institute will use is described in more technical detail.

As used in this analysis, the costs avoided by reducing violence include two broad categories of costs: fiscal costs and victimization costs.

Measuring the Avoided Fiscal Costs: The easiest avoided costs to measure are fiscal costs borne by taxpayers to fund the juvenile and adult criminal justice systems in Washington. These costs include the police, the courts, the correctional system, and the other public agencies responding to delinquent or criminal behavior. If violent acts and violent individuals can be reduced through the efforts initiated by the Violence Prevention Act, then some portion of these fiscal costs can be avoided.

In order to estimate these costs, we will analyze the incremental, or *marginal*, costs of the criminal justice system in Washington. Frequently, fiscal reviews use a shorthand method and calculate the *average* cost of the criminal justice system. For example, the Average Daily Population of State Juvenile Rehabilitation facilities in fiscal year 1993 was 1,035 juveniles and the actual operating expenditures were \$32,775,457. The *average* operating cost was thus \$31,667 per juvenile in 1993. The *marginal cost* of the juvenile facilities, on the other hand, is likely to be quite different than the average cost. Using average cost as a surrogate for incremental cost does not accurately estimate how total costs would change if violence is reduced. Many costs of the corrections system are fixed and do not vary—at least in the short-run. For example, the cost of the physical facilities, as well as many of the operational costs, do not change in a one-to-one relationship as more juveniles are processed through the system. These factors must be taken into account when estimating the avoided cost impact of violence prevention programs.

The Institute will use historical data on actual operating expenditures and population counts to estimate the “marginal” operating cost of corrections. Future capital costs will be separately estimated based on historical data and on projected future per unit capital costs. Marginal operating and capital costs will then be combined to estimate the avoided cost of the overall correctional system in the state. The cost curves will be estimated with standard econometric techniques.

These marginal costs will be calculated at several different points in the criminal justice system depending on the age group for which a violence prevention program is designed. For example, if a violence prevention program is aimed at very young children and if the program is successful, then criminal justice costs will be avoided for many years into the future. Some of these costs, however, would have been adult corrections costs incurred two or three decades later. In any economic analysis, these future costs would be discounted considerably to present value terms. A success in a program that aims at a teenage offender population, on the other hand, will not avoid many years of juvenile system costs, but the adult corrections costs would not be as deeply discounted to present value terms, and thus would be larger in present value terms. An economic analysis explicitly considers the effects of time on decision making and can produce reasonable ranges of avoided costs, thus allowing sensitivity in measuring the potential benefits of various types of prevention programs.

The Institute's study of avoided corrections systems costs, in addition to being an important part of the overall evaluation of the Violence Prevention Act, will be useful for the state in estimating the fiscal impact of proposed legislative changes to the state's criminal justice system.

Measuring Avoided Victimization Costs: One of the goals of the Violence Prevention Act is to “reduce the fiscal and social impact of violence on our society.”³⁰ The previous section addressed the Institute's proposed approach to estimating the fiscal costs of violence. The Institute will also review the national literature on the costs borne by the victims of violence.³¹ The victims of violence include those directly affected by violence and those only indirectly affected as a result of violence happening to other people. For example, national studies have shown that a direct victim of violence suffers an economic cost of lost wages due to unpaid workdays recovering from a violent assault. Indirect victims also suffer the lost economic productivity from these unpaid workdays.³² Both of these costs, at least conceptually, can be thought of as the costs of violence to direct and indirect victims.

Victimization costs are, of course, difficult to estimate empirically. Many of these costs are not traded in a marketplace where prices are established. Some victim costs, however, *can* be measured in marketplace transactions. For example, higher insurance premiums that direct and indirect victims pay, and the additional costs associated with privately purchased security systems, are types of market-based costs borne by the victims of violent crime. Additionally, some estimates of the costs of injury and other economic costs (such as loss of work) are reported in victim surveys such as the *National Crime Victimization Survey* from the U.S. Bureau of Justice Statistics.

As part of this study of the total costs of violence, the Institute will provide the legislature and others with a summary of the estimates from other studies on the costs of violence borne by victims (see box on the next page). This information, along with avoided fiscal costs, will be used by the Institute to estimate the total benefits that citizens in Washington receive when violence is successfully prevented.

Categories of Violent Victimization Costs

Cohen, Miller, and Rossman have developed categories for the costs of victimization. For each of these categories, they have reviewed national studies and estimated a range of victimization costs. In developing estimates of the costs of victimization, the Institute will review these categories, and the specific estimates of the victimization costs made in various national studies, to determine their applicability for Washington State.

<u>Cost Category</u>	<u>Party That Bears Cost</u>
Direct Property losses	
Losses not reimbursed by insurance	Victim
Losses reimbursed by insurance	Society
Administrative cost: insurance reimbursement	Society
Recovery by police	Society
Medical and mental health care	
Charges not reimbursed by insurance	Victim
Charges reimbursed by insurance	Society
Administrative overhead of insurance coverage	Society
Victim Services	
Expenses charged to victim	Victim
Expenses paid by service agency	Society
Temporary labor and training of replacements	Society
Lost Workdays	
Lost wages for unpaid workdays	Victim
Lost productivity for paid workdays	Society
Lost School Days	
Forgone wages due to lack of education	Victim
Forgone nonpecuniary benefits of education	Victim
Forgone social benefits due to lack of education	Society
Lost Housework	Victim
Pain and Suffering	Victim
Death	
Value of life	Victim
Funeral and burial expenses	Victim's family
Loss of affection/enjoyment	Victim's family
Psychological injury/treatment	Victim's family
Legal costs associated with tort claims	Victim

From Mark A. Cohen, Ted R. Miller, Shelli B. Rossman, "The Costs and Consequences of Violent Behavior in the United States," (1993) in *Understanding and Preventing Violence*, ed. Albert J. Reiss, Jr. and Jeffrey A. Roth. Washington, D.C., National Academy Press, p 80.

Research Topic 4. How effective are the Networks' prevention programs in reducing the rates of violence and at-risk behaviors, and enhancing protective factors, in Washington? What success level is necessary for violence prevention programs to be cost-effective?

This research goal in this topic is different—and the analysis is more statistically complex—than the previous research topics in this evaluation plan. The goal of research topic 1 is to provide policymakers at the state and community levels with the best information on actual **trends** in youth violence and at-risk behaviors in the state. Topic 2's purpose is to find out how much prevention programs **cost**, while the goal of topic 3 is to determine the social and fiscal **benefits** if violence can be successfully prevented. The purpose of topic 4, on the other hand, is to estimate the **effectiveness** of the programs; that is, the degree to which the Networks actually prevent or reduce violence and at-risk behaviors, and enhance protective factors.

Human behavior is complex and establishing the independent effect of, say, a violence prevention program on the actual behavior of a young person poses considerable statistical difficulties. Many factors influence the behavior of a child—only a few of which may be affected by a violence prevention program. From a research standpoint, this makes it hard to distinguish the specific effect of a program from other factors contributing to a young person's behavior.

Moreover, the purpose of the legislation is to develop prevention programs that—**over the long-term**—reduce the rate of violence and at-risk behaviors, and increase protective factors, throughout the state. Thus the research task is made even more imposing by the length of time needed to determine if a prevention program works. For example, it may take a decade or more to know whether an early-childhood family preservation program is actually effective in reducing the rate of violent teenagers. In the meantime, many other factors may influence a juvenile's behavior. All of these factors make estimating a program's effectiveness a complicated statistical task.

1. Evaluating Performance at the Network Level:

The assignment to the Institute is to evaluate the effectiveness of the Community Public Health and Safety Networks. Additionally, after a Network has been in operation for five years, the Institute must “make recommendations to the legislature concerning whether the funds received by [a] community network should revert back to the originating agency.”³³

The legislature set the following test for making this funding recommendation: whether a Network “fails to meet the outcome standards and goals in any two consecutive years” after considering “the adequacy of the level of intervention relative to the risk factors in the community and any external events having a significant impact on risk factors or outcomes.”³⁴

The Act directs the Institute to “produce an external evaluation of the effectiveness of the networks and their programs.”³⁵ Moreover, the research “shall result in [a] statistically valid evaluation at both the state-wide and community levels.”³⁶ These requirements, taken together, would set up a large, and prohibitively expensive, research agenda.

Currently 53 Networks are in operation and if, for example, each Network were to allocate money to just 5 individual violence and at-risk prevention programs, then the total number of program evaluations required to undertake a detailed analysis of the Networks and their programs would be 265 (53 X 5)! Some of the Networks are also quite small, with community population less than the 40,000 referred to in the Act. These small Networks will be difficult to evaluate statistically because many of the outcome indicators will be based on too small a number to insure statistical validity.

Ideally, in order to produce statistically significant findings for each Network, control-group evaluations would be undertaken for each of these programs. That level of research, which would have to be carried on for many years in order to measure the long-run effects of the prevention programs, would be very expensive. It is also not what the 1994 Legislature intended.

The Institute’s approach will instead focus on a reasonable set of methodologies to assess overall Network performance without being too costly or cumbersome. The following four studies are designed to meet that goal.

a) *Cost-effectiveness Thresholds for Violence Prevention Programs:* As difficult as it is to evaluate whether prevention programs actually reduce the rate of violent behavior, the Institute’s research can provide a “**cost-effectiveness threshold**” for such programs. That is, the Institute’s research can be used to calculate how many successes a violence prevention program must have in order to be cost-effective. These threshold levels can then be compared to evaluation studies done elsewhere to provide a first-order test of reasonableness.

If we know a reasonable estimate of the long-term *benefits* of preventing one juvenile from becoming violent, and if we know how much a prevention program *costs*, then simple division can indicate how many successes are needed by a prevention program to be

economically cost-effective. This can be seen by examining the basic relationships in the basic cost-benefit equation from Figure 1, listed again here:

$$\begin{array}{l} \text{\textit{The Fiscal and Social Benefits}} \\ \text{\textit{of Preventing Violence}} \\ \text{\textit{(Research Topic 3 of this Plan)}} \end{array} = \frac{\begin{array}{l} \text{\textit{The Total Cost of the}} \\ \text{\textit{Prevention Programs}} \\ \text{\textit{(Research Topic 2 of this Plan)}} \end{array}}{\begin{array}{l} \text{\textit{The Number of Violent Acts}} \\ \text{\textit{or Violent Individuals Reduced}} \\ \text{\textit{(Research Topic 4 of this Plan)}} \end{array}}$$

This test reads as follows: a violence prevention program is cost-beneficial up to the point where the benefits of reducing an additional violent act or keeping an additional individual from perpetrating violent acts, just equal the cost-per-success of the violence prevention program. The research agenda described in this evaluation plan will provide reasonable answers to two of the three factors in this equation. Research topic 2 will provide an accounting of the total fiscal costs of running violence prevention programs in the State. The research from topic 3 will yield estimates of the fiscal and social benefits that citizens of Washington receive each time violence is prevented. As mentioned, the most difficult part of this evaluation will be determining the denominator on the right-hand side of the equation: *the number of violent acts or violent individuals actually reduced with prevention programs*.

Fortunately, if we have reasonable estimates for two of the three variables in the equation, then simple algebra can provide a solution for the third. The result is a variable that measures the **cost-effectiveness threshold** of a program. That is, we can re-arrange the above equation to read:

$$\begin{array}{l} \text{\textit{The Number of Violent Acts}} \\ \text{\textit{or Violent Individuals Reduced}} \end{array} = \frac{\begin{array}{l} \text{\textit{The Total Cost of the}} \\ \text{\textit{Prevention Programs}} \end{array}}{\begin{array}{l} \text{\textit{The Fiscal and Social Benefits}} \\ \text{\textit{of Preventing Violence}} \end{array}}$$

To use invented numbers, if the Institute's research shows that the long-run present value benefits to society of keeping one juvenile from beginning a violent criminal life is \$100,000, and if the total present value cost of a particular violence prevention program is \$2,000,000, then that violence prevention program will have to have at least 20 successes (that is, the program must be able to keep 20 juveniles from beginning a violent criminal life) in order for the program to be cost-effective. Evaluation research may never be able to say with much certainty whether 20 kids were successfully diverted from violence, but

this threshold calculation can be used as a check for reasonableness. Suppose, to continue the example, that the hypothetical program served a total of 100 kids; then the program would have to have a 20 percent success rate (20/100) in order to be cost-effective. This threshold success rate can be compared to findings from other national evaluations of similar programs to estimate the probabilities of cost-effectiveness.

This research will, of course, be complicated by several factors, including the fact that many programs have multiple purposes and multiple benefits. For example, a Network may undertake a school dropout prevention program with the idea that it may produce both violence-reduction benefits and other economic and social benefits for the community. These and other factors will be considered in the Institute's analysis.

A distinct advantage of this cost-effectiveness threshold analysis is that information on program costs and the societal benefits of violence prevention will be available from the Institute's research long before it is known whether violence prevention programs are actually successful. As noted above, it can take many years to know, statistically, if a prevention program is successful. The threshold approach, on the other hand, can be used early in the life of a prevention program to estimate the cost-effectiveness target for individual programs. This will provide useful information to the Networks, the Family Policy Council, the Institute, and to the Washington Legislature.

b) Cross-sectional Analysis of the 53 Networks' Outcome Indicators: There are 53 Community Public Health and Safety Networks currently designated in Washington. Each Network faces its own unique set of circumstances: some are rural, some are urban; some have high poverty rates, some are economically robust; some communities are relatively stable, others have high rates of transiency. Under the Violence Prevention Act, each Network will develop its own comprehensive plan and specify its own goals. Each Network will then have the opportunity to allocate resources in a "portfolio" of violence and at-risk prevention programs, much in the same way that a mutual fund manager creates a portfolio out of diverse financial investments.

Thus, the 53 Networks face 53 unique sets of circumstances and will develop 53 unique approaches to dealing with their problems. In one sense, therefore, 53 experiments will occur in Washington in the next few years. Part of the Institute's research agenda will be to provide information on the successes and failures of these experiments.

For any of the outcome indicators identified in the Violence Prevention Act that can be measured statistically, a distribution will occur across the 53 Networks. For example, if a rate of youth violence (violent crimes committed by youth divided by total youth population) is calculated for each Network, then there is now, and there always will be, a range of violence rates from high to low. At any point in time therefore, the 53 Networks can be measured and ranked based on violence rates, teen suicide rates, school drop-out rates, or any of the other outcome behaviors identified in the Act.³⁷

The research questions are, first, whether these distributions of outcome indicators reflect actual differences among the Networks or whether the differences are caused by divergent data reporting systems in the 53 Networks. Drop-out rates, for example, are often calculated in different ways by the many school districts in the state. These different ways to measure outcomes make cross-Network comparisons problematic, but not impossible.

Second, to the extent that the statistical distributions appear to reflect real differences among the Networks, can the differences from one Network to the next be explained statistically? Each Network will have certain things it can control; for example, the decisions made by a Network on allocating funds among different programs. There are also many factors beyond the control of a Network; for example, the poverty or urbanization rates in a Network. The hypothesis to be tested is this:

If all factors that are outside a Network's control are accounted for, then the Networks that deploy their resources more effectively should have better outcome indicators than the Networks that concentrate their resources on prevention programs that are not cost-effective.

This hypothesis will be examined statistically by using a cross-sectional analysis of the distributions of outcome indicators. For example, the analysis will take a distribution of youth violence rates (perhaps those measures discussed in Research Topic 1, above) as the dependent variable in a cross-sectional analysis of the 53 Networks. Two sets of variables will then be used to estimate the distribution of violence rates: the factors controlled by the and those factors beyond the control of the Networks. A mathematical representation of the model is included in the appendix to this paper.

The advantage of this type of research is that it is fairly inexpensive to conduct; it uses community-level indicators that are often readily or fairly easily available. The disadvantage of this type of analysis stems from its advantage: it is likely to be difficult to reach firm statistical conclusions about the effectiveness of Network decisions using community level indicators. Because the research costs are low, however, this methodology can be used in a cost-effective way to help the Institute's evaluation of the Networks and their violence and at-risk prevention programs. **At a minimum, this type of analysis can help spot the major factors that distinguish the violence and at-risk rates among the 53 Networks in Washington.**

c) Comparison of Planned to Actual Outcome Standards by Networks: As noted above, the Violence Protection Act sets up a basic test that the Institute is to use in recommending the continued funding of a Network. The test is whether a Network “fails to meet the outcome standards and goals in any two consecutive years” after the Institute considers “the adequacy of the level of intervention relative to the risk factors in the community and any external events having a significant impact on risk factors or outcomes.”³⁸ To undertake this specific task, the Institute will compare the information on the outcome standards from each Network’s Plan to the actual outcome statistics. This comparison is closely related to the cross-sectional study described above. The results from the cross-sectional study will help the Institute consider the “external events having a significant impact on risk factors or outcomes” as required in the legislation. Actual outcomes can be compared to target outcomes from each Network’s plan, and rates of change can be compared for Networks that face similar external (or exogenous) conditions.

d) Selected Control-Group, Program-Level Evaluations: Designing an evaluation in which the results of a randomly-assigned control group can be compared to those of a group that receives a program’s treatments, offers the best chance of drawing firm statistical conclusions about a program’s actual effectiveness. Unfortunately, the ability to use rigorous experimental designs in this evaluation of the Networks will be limited at best.

As described above, it is possible that the total number of violence and at-risk prevention programs funded by the Networks could amount to several hundred in number. The legislature gave the Networks wide latitude in designing their own strategies. It would not be possible, or at least it would be extremely costly, to undertake rigorous control-group evaluations of each of these programs. And yet the legislation requires the Institute to make Network-level evaluations. The three just-described research methodologies will help the Institute analyze the effectiveness of the “portfolio-like” decisions made by the Networks.

Some types of violence and at-risk prevention programs, however, merit the special attention that only an experimental evaluation design can provide. Future resources *may* allow such evaluations for a limited number of programs.

The Institute will select, for detailed study, a small number of individual programs that are of particular interest to the legislature or the Board of Directors of the Institute. These programs may be the ones that are chosen frequently by the Networks, or ones without

any history of evaluation in Washington or other states. Before selecting these programs for in-depth study, the Institute will consult with the Institute's Board, the legislature, and the Family Policy Council. It is unlikely that Network programs will be funded via the "decategorization" until after the 1997-1999 biennial budget is adopted by the legislature. Therefore, there will be no individual Network programs to evaluate until that time.

For this *smaller sample of programs*, the Institute will test their effectiveness using an *experimental design*. Individual-level data will be collected, as opposed to the community-level data described above, to form the basis of the evaluation of these selected programs. Again, studying a few individual programs will not allow the Institute to make evaluations of each of the 53 Networks as required in the legislation, but it will provide the legislature and the Networks with information that should be useful in analyzing a few prevention programs of particular interest.

Research Topic 5. How effective are the Networks in furthering the governance goals of the Act?

One of the principal elements of the Violence Prevention Act is a legislatively-directed shift in governing authority—away from state government and toward local communities.

To implement this governance shift, the legislature created Networks. The legislature wanted the Networks to “empower parents and other citizens by being a means of expressing their attitudes, spirit, and perspectives regarding safe and healthy family and community life.”³⁹ To that end, the legislature offered the following intent:

*The legislature intends that parent and other citizen perspectives exercise a controlling influence...It is not the intent of the legislature that health, social service, or educational professionals dominate community public health and safety network processes or programs...the legislature intends full participation of parents and other citizens in community public health and safety networks.*⁴⁰

The final research topic will examine the organization and structure of Networks as decision-making bodies. This review will focus on the following questions:

- How are Networks functioning in conjunction with local government and the non-profit sector?
- What accountability measures are in place for Networks, including political and fiscal accountability?
- How do data on risk and protective factors influence Networks’ decision-making? What are the influences on state decision-making?
- Does coordination among social service providers improve as a result of Network decision-making?
- How effective have the five state agencies that make up the Family Policy Council been in coordinating state services to the Networks?

Focus groups will be used to define the research questions in more detail. These groups will include a cross-section of Network members and non-members, including representatives from local government and social service providers.

As an additional aid in understanding organizational issues, the Institute will study two previous reforms in social service delivery that have involved a similar organizational approach. These programs—the Regional Support Networks in the mental health area and the Area Agencies on Aging for aging and long-term care issues—offer useful comparisons, both in terms of similarities and differences in organizational structure, authority, and purposes. The Institute will summarize the experiences of these organizations in Washington, focusing on parallel issues that face the Networks.

The Institute will coordinate this portion of its research with the Family Policy Council, in conjunction with its monitoring responsibilities.

APPENDIX

Avoided Cost Model

In *Figure 1 on page 19*, the benefits of preventing violence are defined as the present value of the fiscal and victimization costs avoided by reducing the rate of violence by a single unit. In the equation below, the present value of these avoided costs is defined more operationally. The *Avoided Cost* variable is the base marginal cost incurred as a result of an additional violent act or violent individual, expressed in constant 1995 dollars.

In the Institute's research, fiscal and victimization costs will be analyzed for various parts of the state's criminal justice system. These base-year avoided costs will be escalated at an estimated real (i.e., inflation-adjusted) rate of change. This real rate of change could be greater than, lesser than, or equal to zero.

The analysis will also account for the fact that, except for violent prisoners sentenced to life-time terms, the average violent offender will not cause marginal fiscal costs every year in his or her life. In equation (2), the *Probdist* variable measures the expected life-cycle distribution of probabilities of using the criminal justice system in the state in any year. Finally, this stream of expected future costs is discounted to present value terms using a real discount rate to account for the time value of resources (see box).

In this model, the present value (PV) of avoided violence costs is defined as,

$$PV(AvoidedCosts) = \sum_{s=1}^S \sum_{t=1}^T \frac{AvoidedCost_s * Probdist_{st} * (1 + Realesc_s)^t}{(1 + DiscountRate)^t}$$

where,

Avoided Cost = the estimated marginal fiscal and victimization costs of an additional violent act or individual, in 1995 dollars, for sector *s* of the criminal justice system;

Realesc = the annual expected rate of growth in real (inflation-adjusted) marginal costs for sector *s* of the criminal justice system;

DiscountRate = the real (inflation-adjusted) rate of discount used to measure the value of resources over time;

Probdist = an estimated probability distribution that, without a successful violence prevention program, a violent offender will cause marginal costs in sector *s* of the criminal justice system to be incurred in year *t*;

S = the number of sectors of the state's criminal justice system for which marginal costs are separately estimated;

T = the number of time periods (e.g. years) over which marginal costs are estimated.

The actual cost model to calculate the present value of avoided violence costs will be more complicated than equation (2) above. Several other factors, mentioned below, will need to be accounted for in estimating the *Avoided Cost* variable.

Discounting Costs and Benefits

The Institute's evaluation of the economics of the Violence Prevention Act will involve a "time dimension." That is, the costs and benefits the Institute will estimate for the violence prevention programs will occur at different points in time. Some will be incurred immediately while some will only be incurred many years in the future. For example, a Network might choose to spend money today on a violence prevention program, but the fiscal benefits—the avoided costs of the juvenile and adult corrections systems—will be obtained many years in the future.

These differences in timing must be taken into account when studying the economics of the Act. The reason is that having a resource today is more valuable than having the same resource sometime in the future; it is better to have \$100 today than to have \$100 ten years from now. Even if there is no inflation in the economy, \$100 could be invested today in a safe security and it would be worth more than \$100 in ten years. Therefore, in terms of its present value, \$100 ten years from now is worth less today. In order to compare the value of a resource over time, its future value must be discounted to make it equivalent to its present value. The factor applied to make this adjustment is called a discount rate. Public, or social, discount rates are different for different types of resources. In the study of the Violence Prevention Act, the Institute will review the national literature on the appropriate discount rate for violence prevention programs, and then apply that rate to the analysis of the Act.

Cross-section Model of Performance Indicators for the Networks

Two sets of variables will be used to estimate the distribution of violence rates across the 53 Community Networks: the factors controlled by the Networks and those factors beyond the control of the Networks. A simplified cross-sectional model can be expressed as follows:

$$\mathbf{Y} = f(\mathbf{X1}, \mathbf{X2}, \mathbf{E}),$$

where,

Y = a 1X53 vector of outcome indicators for a particular youth violence or at-risk problem behavior;

X1 = an nX53 matrix of factors controlled by the Networks;

X2 = an nX53 matrix of factors not-controlled by the Networks;

E = a 1X53 vector of errors.

This general model will be estimated using several statistical techniques. Because some of the “independent” **X1** and **X2** variables will influence each other, in addition to the **Y** variable, it is likely that a structural equation model will be used to estimate a system of simultaneous equations for these variables.⁴¹

ENDNOTES

¹E2SHB 2319 Section 203.

²E2SHB 2319 Section 310 (6).

³E2SHB 2319 Section 101.

⁴E2SHB 2319 Section 101.

⁵E2SHB 2319 Section 203.

⁶E2SHB 2319 Section 102.

⁷E2SHB 2319 Section 101.

⁸E2SHB 2319 Section 101.

⁹E2SHB 2319 Section 203.

¹⁰E2SHB 2319 Section 101.

¹¹E2SHB 2319 Section 207 (1).

¹²E2SHB 2319 Section 207 (1) and Section 307 (b).

¹³E2SHB 2319 Section 207 (2).

¹⁴E2SHB 2319 Section 207 (1).

¹⁵ Washington State Department of Health (1994), *Youth Risk Assessment Database*.

¹⁶ Washington State Department of Health (1993), *A Preliminary Assessment of Violence in Washington State*

¹⁷ Washington State Department of Health, (1994), *Public Health Improvement Plan*

¹⁸ Washington State Department of Health, (1995), *Youth Violence and Associated Risk Factors: An Epidemiologic View of the Literature*

¹⁹ Governor's Juvenile Justice Advisory Committee (1993), *Juvenile Justice Report*.

²⁰ University of Washington, School of Public Health and Community Medicine (1994), *The State of Washington's Children*.

²¹ Seattle-King County Department of Public Health, (1994), *Too Many, Too Young: Violence in Seattle and King County*

²² Any changes to the felony rankings for juvenile offenses will be taken into account for these calculations.

²³ See, for example, Wilson, James, Q. 1995. "Crime and Public Policy." In *Crime*, ed. James Q. Wilson and Joan Petersilia. San Francisco: Institute for Contemporary Studies, 492.

²⁴ John Steiger, now with Washington's Sentencing Guidelines Commission, has studied recidivism rates for those youth who end up in Washington's Juvenile Rehabilitation Administration, but not for the entire population of young offenders in the JUVIS database. See Stieger's useful study: *Rehabilitation, Release, and Reoffending: A Report on the Criminal Careers of the Division of Juvenile Rehabilitation Class of 1982*, Olympia: Department of Social and Health Services, May 1991.

²⁵ E2SHB 2319, Section 101.

²⁶ E2SHB 2319, Section 308 (2).

²⁷ E2SHB 2319 Section 101.

"The Costs and Consequences of Violent Behavior in the United States," (1993) in *Understanding and Preventing Violence*, ed. Albert J. Reiss, Jr. and Jeffrey A. Roth. Washington, D.C., National Academy Press, p. 84.

²⁹ See, for example, Zimring, Franklin E., and Gordon Hawkins, "The New Mathematics of Imprisonment," *Crime and Delinquency*, Vol, 34, No. 4, October 1988, pp. 425-436.

³⁰ E2SHB 2319, Section 101.

²⁸ Cohen, Mark A., Ted R. Miller, Shelli B. Rossman,

³¹ Much of this section is derived from a comprehensive study undertaken by Mark A. Cohen, Ted R. Miller, Shelli B. Rossman, "The Costs and Consequences of Violent Behavior in the United States," (1993) in *Understanding and Preventing Violence*, ed. Albert J. Reiss, Jr. and Jeffrey A. Roth. Washington, D.C., National Academy Press.

³² *Ibid.*, p 80.

³³ E2SHB 2319, Section 207 (2).

³⁴ E2SHB 2319, Section 207 (2).

³⁵ E2SHB 2319, Section 307 (8)(b).

³⁶ E2SHB 2319, Section 207 (1).

³⁷ The data, for example, could be those published in The Washington Department of Health's *Youth Risk Assessment Database*, October, 1994.

³⁸ E2SHB 2319, Section 207 (2).

³⁹ E2SHB 2319, Section 303.

⁴⁰ E2SHB 2319, Section 303.

⁴¹ Intriligator, Michael D., *Econometric Models, Techniques, and Applications*, Englewood Cliffs: Prentice Hall, Inc.